Applicant: Marks de Chabris et al.
Application No.: 09/770,108

REMARKS

Claim 1 and claims 4 to 27 are presently pending in the subject patent application. Independent claims 1, 10 and 22 stand rejected under 35 USC 103(a) for being unpatentable over Ordish in view of Lupien. Claims 4 to 9, 11 to 21, and 23 to 27 stand rejected under 35 USC 103(a) for being unpatentable over Ordish (US 5,727,165) in view of Lupien (US 5,845,266) and Buist (US 6,408,282).

For the reasons set out below, the Applicant submits that the Examiner failed to make out the requisite *prima facie* case of obviousness to properly reject claim 1, and claims 4 to 27 under 35 USC 103(a). Accordingly, the Applicant submits that the Examiner's rejection of the claims under 35 USC 103(a) should be withdrawn.

Obviousness Generally

In order to sustain a *prima facie* obviousness rejection to a claim under 35 USC 103(a) based on a modification to a cited reference, there must be some motivation or suggestion in the prior art for the modification. As the Court of Appeals for the Federal Circuit explained in *re: Gordon* (221 USPQ 1125, 1127 (CAFC. 1984), the mere fact that the prior art could be modified to arrive at the inventor's invention is not germane. Rather, the appropriate inquiry under 35

USC 103(a) is whether the prior art would have suggested the desirability of the modification.

Further, since all the words in a claim must be considered when judging patentability, to sustain a *prima facie* obviousness rejection all the claims limitations must be taught or suggested by the prior art: In re Royka, 180 USPQ 580, 583 (CCPA 1974). And, as the Court of Appeals for the Federal Circuit articulated in *Re Sang-Su Lee* 00-1158, Serial No. 07/631,240, January 18, 2002, there must be some concrete **evidence** in the record for the motivation or suggestion.

As the Applicant will explain, the Examiner failed to produce any evidence of motivation for a solution having all the claim limitations recited herein. Accordingly, the invention recited in claim 1, and claims 4 to 27 is not obvious in view of the cited art.

Method of Matching Orders (claim 1; claims 4 to 9)

Independent claim 1 of the subject patent application recites a method of matching orders. The method as claimed involves the steps of:

a) receiving an order definition defined with an evaluation heuristic, the evaluation heuristic identifying a plurality of transaction instances, each said transaction instance identifying an order, a transaction destination and a time instant for execution of the order with the transaction destination;

b) at the time instant associated with one of the transaction instances, transmitting over a communications network to the associated transaction destination an order message identifying the associated order; the time instant, the order and the transaction destination of the order message being determined in accordance with the evaluation heuristic;

c) receiving over the communications network a completion message identifying a completion status of the order at the transmitted transaction destination; and

d) repeating steps b) and c) in accordance with the completion status and the evaluation heuristic.

The Examiner submitted that, apart from the use of an evaluation heuristic, Ordish disclosed a method of order matching, comprising steps (a), (b), (c) and (d) above. The Examiner also argued that it would have been obvious to combine the teachings of Ordish with the teachings of Lupien since Lupien teaches that heuristics allow for maximization of joint satisfaction of all participants. The Applicant disagrees with both of these conclusions.

Ordish (US 5,727,165)

Ordish describes an order matching system for trading instruments in which the occurrence of automatically-confirmed trades is dependent upon the receipt of match-acknowledgement messages from all counterparties to the trade. The matching system includes a host computer in communication with a

number of keystations. In one embodiment, one of the keystations (KS A) transmits an offer message to the host computer identifying an offer to sell instruments. The host computer broadcasts the message to all the keystations. A counterparty at another one of the keystations (KS B) transmits an counter-offer message to the host computer identifying a counter-offer to buy the instruments. The host computer transmits a confirmation message to keystation KS A confirming the sale of instruments, and also transmits a confirmation message to keystation KS B confirming the purchase of the instruments.

Upon receipt of the confirmation messages, the keystations KS A and KS B start respective timers TA and TB, and then automatically transmit respective acknowledgement messages back to the host computer. Upon receipt of the confirmation messages, the host computer transmits confirmed trade acknowledgement messages back to the keystations KS A and KS B.

Preferably, the timers TA and TB have 15 second periods. If the keystation receives the confirmed trade acknowledgement message from the host computer before the timer expires, the keystation displays a "confirmed" trade notice. If a keystation does not receive the confirmed trade acknowledgement message from the host computer before the timer expires, the keystation displays an "unconfirmed" trade notice. If the keystation receives the confirmed trade acknowledgement message from the host computer after the timer expires, the keystation displays a "late confirmed" trade notice.

Optionally, the host computer activates a timer upon receipt of the counter-offer message from the keystations KS B. Preferably, this timer has a 60 second period. If the host computer receives both acknowledgement messages from the keystations before this timer expires, the host computer cancels the timer, declares the match as "fully acknowledged", and transmits the confirmed trade acknowledgement messages to the keystations. If the host computer does not receive any acknowledgement messages from the keystations before this timer expires, the host computer declares the match as "un-acknowledged", which may prompt the host operator to follow up with the parties to the trade.

Contrary to the Examiner's assertion at paragraph 2 of the Office Action, Ordish does not disclose receiving an order definition that identifies a transaction destination or a time instant for the order with the transaction destination. The passage of the patent referenced by the Examiner (column 5, lines 60 to 63) merely states that when the host computer receives the counter-offer message from the keystation (KS B), the host computer transmits confirmation messages to the keystations, which causes the keystations to start their respective timers TA and TB. This passage does not state that the order definition identifies a time instant for execution of an order, or even a transaction destination for the order, as recited in claim 1, paragraph (a).

Also, contrary to the Examiner's assertion, Ordish does not disclose transmitting an order message at the time instant associated with one of the transaction instances. The passage of the patent referenced by the Examiner

(column 6, lines 30 to 35) only states that if the keystation receives the confirmed trade acknowledgement message from the host computer before the timer TA, TB expires, the keystation displays a "confirmed" trade notice. This passage does not describe transmitting an order message to a transaction destination at a time instant specified by the order definition, as recited in claim 1, paragraph (b).

In addition, the Applicant points out that Ordish does not disclose repeatedly placing orders by transmitting order messages defined by a common order definition, and receiving completion messages identifying the completion status of each order, as required by claim 1, paragraph (d). Instead, Ordish only discloses that each keystation transmits a single order message and receives order confirmation messages in response to each single order message. In effect, in Ordish an order definition gives rise to a single order message. Consequently, the Examiner's conclusion that, apart from the use of an evaluation heuristic, Ordish discloses a method of order matching, comprising steps (a), (b), (c) and (d) of independent claim 1, is incorrect.

No Suggestion or Motivation to Modify Ordish in view of Lupien

For the Examiner to maintain a *prima facie* obviousness rejection of the invention recited in claim 1, and claim 4 to 8 of the subject patent application, the Examiner must demonstrate that the prior art suggests modifying Ordish to allow the keystations to define an order definition in accordance with claim 1,

paragraph (a). In other words, the prior art must suggest creating an order definition defined with an evaluation heuristic that specifies a number of orders, each comprising a transaction destination and a time instant for execution of each order at the respective transaction destination.

The Examiner must demonstrate that the prior art suggests modifying Ordish so as to cause the keystations to transmit an order message in accordance with claim 1, paragraph (b). In other words, the prior art must suggest transmitting, at the time instant associated with one of the transaction instances specified in the order definition, an order message to the associated transaction destination specified in the order definition. The Examiner must also demonstrate that the prior art suggests transmitting such order messages based upon the evaluation heuristic.

The Examiner must demonstrate that the prior art suggests modifying Ordish so as to cause the keystations to continue to place such orders in accordance with claim 1, paragraphs (c) and (d). In other words, the prior art must suggest repeatedly placing such orders in accordance with the evaluation heuristic, and completion messages received in response to the transmitted order messages.

Alternately, the Examiner must provide evidence that a person of ordinary skill would be motivated by the prior art to make the aforementioned modifications. The Applicant submits that the Examiner has failed to identify the requisite suggestion or motivation for these modifications.

Lupien (US 5,845,266) describes a crossing network that matches buy and sell orders based upon a satisfaction density profile that represents a degree of satisfaction to trade a particular instrument at various combinations of price and quantity. Once a trader has defined a satisfaction density profile, each trader transmits the profile to a common matching controller computer. The matching controller computer calculates, for each buyer/seller pair, a mutual satisfaction cross-product profile that represents the degree to which that buyer/seller pair can satisfy each other at each grid value of price and quantity. The cross-product profile grid values are ranked in order, and the buy/sell orders represented by the cross-product grid value are then matched. (see column 4, lines 24 to 46).

As shown in Fig. 2 of the patent, Lupien allows traders to define an order with the satisfaction density profile by inputting the ticker symbol for the instrument to be traded, a satisfaction contour for the desired price and quantity dimensions, and a time-in-force indicator that indicates the period of time (eg. "good until cancelled", "good until end of day") for which the defined order should remain valid (see column 7, line 15 to column 8, line 4). A sample satisfaction density profile is depicted in Fig. 3a. As described at column 8, lines 16 to 34 of the patent, the vertical axis represents price, the horizontal axis represents quantity, and each contour represents a locus of price/quantity pairs having a specified satisfaction density.

As will be apparent from Fig. 2, Lupien does not allow the trader to input the transaction destination for each respective price/quantity pair. Rather, Lupien requires all of the traders to transmit their satisfaction density profile to a common matching controller computer where matching occurs. Lupien makes no suggestion of allowing traders to specify a transaction destination for each price/quantity pair.

Further, the time-in-force indicator does not allow the trader to specify when the orders specified in the satisfaction density profile should be executed. Instead, the time-in-force indicator only allows the trader to specify the time frame during which the order remains active. Also, as will be apparent from Fig. 2 and Fig. 3a of Lupien, the time-in-force indicator is applicable to the entire locus of price/quantity pairs. Lupien does not allow the trader to specify a time instant for execution of an order defined by each price/quantity pair, and makes no suggestion of allowing traders to specify for each price/quantity pair a time instant at which orders for each price/quantity pair should be executed.

In addition, in Lupien, each trader transmits their respective satisfaction density profile to the common matching controller computer when each satisfaction density profile is complete. Lupien does not suggest allowing the traders to transmit their satisfaction density profiles to the common matching controller computer based upon time information contained in the satisfaction density profiles.

Further, in Lupien, the matching controller computer is in effect the only transaction destination, since the matching controller computer itself matches the buyers and the sellers. Lupien does not teach allowing the matching controller computer to transmit order messages over a communications network to a remote transaction destination specified in the order definition for execution of the order at that remote transaction destination. Lupien does not teach transmitting such order messages based upon an evaluation heuristic. Lupien also does not teach repeatedly transmitting such order messages in accordance with an evaluation heuristic and completion messages received in response to the transmitted order messages.

As a result, Lupien contains no suggestion to modify Ordish so as to achieve a solution having all of the claim limitations recited in independent claim 1 of the subject patent application.

The Applicant notes that, at page 3, second paragraph of the Office Action, the Examiner stated:

It would have been obvious to one with ordinary skill in the art to include order definition with an evaluation heuristic because of what is taught by Lupien et al. Lupien et al. teaches that using heuristics allows for maximization of joint satisfaction of all participants. Both Ordish et al and Lupien et al are also concerned with order matching.

The Applicant submits that the Examiner's submission viz motivation is misdirected. As the Applicant previously explained, to establish a *prima facie* obviousness rejection all the claims limitations must be taught or suggested by the prior art: Further, there must be some concrete evidence in the record for such motivation or suggestion. In other words, it is insufficient to merely state the Lupien teaches that heuristics allow for maximization of joint satisfaction of all participants. Instead, the Examiner must point to evidence demonstrating that the person of ordinary skill would be motivated to modify Ordish so as to achieve each element recited in claim 1 of the subject patent application.

In other words, the Examiner must point to evidence on the record demonstrating that the person of ordinary skill would be motivated to modify Ordish so as to:

(1) allow traders to create an order definition defined with an evaluation heuristic that specifies a number of orders, each comprising a transaction

destination for execution of each order, and a time instant for execution of each order at the respective transaction destination;

(2) cause traders to transmit, at the time instant associated with one of the transaction instances specified in the order definition, an order message to the associated transaction destination specified in the order definition;

(3) cause traders to transmit such order messages based upon the evaluation heuristic that was used to define the order definition; and

(4) cause traders to repeatedly transmit such order messages in accordance with the evaluation heuristic, and completion messages received in response to the transmitted order messages.

As the Applicant has explained, Lupien does not describe any of the foregoing features.

Similarly, Buist (US 6,408,282) does not describe any of the foregoing features. In Buist, each sell order message merely identifies a security, a price at which the seller wishes to trade the security, and the quantity of securities to be traded. The order messages are all transmitted to a root server, and assembled into an order book which is then transmitted to other parties interested in the security. Counter-offer messages are transmitted to the root server, which completes the transaction and updates the order book accordingly.

Buist does not teach defining an order definition with an evaluation heuristic that specifies a number of orders, each comprising a transaction destination for execution of each order, and a time instant for execution of each

order at the respective transaction destination. Buist does not teach transmitting an order message, at the time instant associated with one of a number of transaction instances specified in an order definition, to the transaction destination associated with the transaction instance in the order definition. Buist does not teach transmitting such order messages based upon an evaluation heuristic that was used to define an order definition. Buist does not teach repeatedly transmitting order messages in accordance with an evaluation heuristic and completion messages received in response to the transmitted order messages.

Accordingly, neither Lupien nor Buist would provide any motivation to modify Ordish to create an order definition defined with an evaluation heuristic that specifies a number of orders, each comprising a transaction destination for execution of each order, and a time instant for execution of each order at the respective transaction destination.

Neither Lupien nor Buist would provide any motivation to modify Ordish to transmit an order message, at the time instant associated with one of a number of transaction instances specified in an order definition, to the transaction destination associated with the transaction instance in the order definition.

Neither Lupien nor Buist would provide any motivation to modify Ordish to repeatedly transmit such order messages in accordance with an evaluation

heuristic and completion messages received in response to the transmitted order messages.

Accordingly, the Applicant submits that the Examiner has failed to establish a *prima facie* obviousness rejection of the invention recited in claim 1 of the subject patent application.

Since claims 4 to 9 depend from independent claim 1, the foregoing submissions apply equally to the invention recited in claims 4 to 9. Therefore, the Applicant requests that the Examiner's rejection to claim 1 and claims 4 to 9 under 35 USC 103(a) be withdrawn.

Computer-based Order Matching System (claims 10 to 15)

Independent claim 10 of the subject patent application recites a computer-based order matching system. Independent claim 10 is an apparatus corollary of independent claim 1. Accordingly, the foregoing submissions apply equally to claim 10. Therefore, the Applicant submits that the Examiner has failed to sustain a *prima facie* obvious rejection to the invention claimed in claim 10 of the subject patent application.

Since claims 11 to 15 depend from independent claim 10, the foregoing submissions apply equally to the invention recited in claims 11 to 15. Therefore, the Applicant requests that the Examiner's rejection to claims 10 to 15 under 35 USC 103(a) be withdrawn.

Computer-based Order Matching System (claims 16 to 21)

Independent claim 16 of the subject patent application recites a computer-based order matching system. Independent claim 16 is an apparatus corollary of independent claim 1. Accordingly, the foregoing submissions apply equally to claim 16. Therefore, the Applicant submits that the Examiner has failed to sustain a *prima facie* obvious rejection to the invention claimed in claim 16 of the subject patent application.

Since claims 17 to 21 depend from independent claim 16, the foregoing submissions apply equally to the invention recited in claims 17 to 21. Therefore, the Applicant requests that the Examiner's rejection to claims 16 to 21 under 35 USC 103(a) be withdrawn.

Computer-Readable Medium (claims 22 to 27)

Independent claim 22 of the subject patent application recites a computer-readable medium including processing instructions which cause a computer to perform the method steps of independent claim 1. Accordingly, the submissions made for independent claim 1 apply equally to claim 22. Therefore, the Applicant submits that the Examiner has failed to sustain a *prima facie* obvious rejection to the invention claimed in claim 22 of the subject patent application.

Since claims 23 to 27 depend from independent claim 22, the foregoing submissions apply equally to the invention recited in claims 23 to 27. Therefore,

the Applicant requests that the Examiner's rejection to claims 22 to 27 under 35 USC 103(a) be withdrawn.

For the above reasons, the Applicant respectfully submits that the presently claimed invention is patentable over the prior art. Reconsideration and allowance of the claims is respectfully requested.

Respectfully submitted,

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